ROUTING AND TRANSMITTAL SLIP

Date: 7 April 1982

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. DDI		
2. ADDI		8 APR 1982
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	As Requested		For Correction		Prepare Reply
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5041-102

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TRANSMITTAL SLIP	DATE 7 April 1982
TO: DDI Registry	
ROOM NO. 7E47	BUILDING HQS
REMARKS:	
FROM: OD/OGI	
ROOM NO. 3G00	BUILDING HQS

FORM NO. 241 REPLACES FORM 36-8 (47)

STAT

DDI- 7735-82/1

4 APR 1982

MEMORANDUM FOR: Director of Central Intelligence
Deputy Director of Central Intelligence

VIA : Acting Deputy Director for Intelligence

FROM : [redacted] STAT
Acting Associate Deputy Director
for Intelligence

SUBJECT : Unclassified Assessment of North Sea Gas Potential

1. Action Requested. The attached letter, for your signature, responds to Under Secretary of State James Buckley's request for an unclassified background paper on North Sea gas as an alternative to Western European purchases of Soviet gas.

2. Background. In response to Buckley's request, we have prepared an unclassified assessment of North Sea gas potential. STAT
The paper is based on materials that were part of a briefing package we provided for Buckley's recent mission to Europe [redacted] STAT

[redacted] STAT

Attachment:
As stated

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DDI/OGI/ED/M/[redacted] (7 April 1982) STAT

Central Intelligence Agency

Washington, D.C. 20505

Executive Registry
82-4758/2

The Honorable James L. Buckley
Under Secretary for Security Assistance,
Science and Technology Affairs
Department of State
Washington, D.C. 20520

Dear Jim:

Enclosed is an unclassified paper on potential supplies of North Sea gas to Western Europe which was prepared at your request. The study, which was based on the briefing materials prepared for your recent mission to Europe, contains our unclassified assessments of reserves, production potential, and alternative transportation options for North Sea gas. We hope it will be of assistance in any further discussions you may have with European officials.

If we can provide additional assistance, please let us know.

Sincerely,

B. R. INMAN
Admiral, U.S. Navy
Acting Director of Central Intelligence

Enclosure

North Sea Gas: Alternative to Soviet Supplies

North Sea gas could provide Western Europe with an alternative to future purchases of Soviet gas provided agreements can be reached with the Norwegians on a satisfactory price. Norway alone could supply Western Europe with an additional 40-50 billion cubic meters (bcm) by the mid-1990s provided the market for North Sea gas is not preempted by major additional sales of Soviet gas in Europe. Arrangement of a triangular gas deal involving Norway, the Netherlands, and the United Kingdom, might even provide West European customers with some additional supplies in the late 1980s. Such an arrangement, which has political and economic obstacles to overcome, would connect southern UK gasfields to the continent and give the Europeans some added flexibility in dealing with a gas import shortfall. Because of long lead-times and political constraints, large additional supplies of North Sea gas are unlikely before the mid-1990s.

Gas Reserves

Proven gas reserves in the North Sea--comprising mainly Norwegian, UK and Dutch discoveries--presently total about 3.4 trillion cubic meters or 21 billion barrels of oil equivalent. In addition, the Netherlands has 1.3-1.4 trillion cubic meters of onshore reserves. Norway alone has in excess of 2.5 trillion cubic meters and the government believes there is considerable potential to add to this total. Several industry analysts believe that sizable additional discoveries will be made in UK and Dutch offshore waters given sufficient economic incentives.

Proven gas reserves in Norway presently total about 2.6 trillion cubic meters, all located in offshore waters. Among the more prominent fields are:

- The Flathead or Troll structure in Block 31/2 with reserves of 1.4 trillion cubic meters. The field is located in very deep water with a thin oil column underlying the gas zone, both at relatively shallow depths below the earth's crust.

- The Tromsa area north of the 62nd parallel with reserves of about 140-250 billion cubic meters (bcm). The area has promising geological prospects in waters that pose no major drilling problems.

- The Sleipner field with reserves in excess of 200 bcm. Most of the gas contains a relatively high proportion of carbon dioxide which will require separation or dilution.

- The Frigg field, jointly owned with the United Kingdom and presently under production, with reserves of 130 bcm.

- The Idun field with reserves of 225 bcm. It is distant from existing or proposed pipeline routes.

- Associated gas fields including Ekofisk, Statfjord, Block 34/10 and Block 30/6, with reserves of about 500 bcm.

Official UK estimates list proven reserves of 735 bcm. Ultimately recoverable reserves on the UK continental shelf (proved, probable, and possible less cumulative production) are officially estimated at 2.1 trillion cubic meters. The Southern Basin fields alone have 370 bcm of proven reserves occurring as non-associated gas.

Total proven reserves in the Netherlands are listed at about 1.6-1.7 trillion cubic meters by the Dutch government, the bulk of which is in the huge onshore Groningen field. Less than 300 bcm of total Dutch reserves are actually located in the North Sea.

Existing Production Systems

Combined gas production (excluding gas flared or reinjected) from Norway, the United Kingdom, and the Netherlands in 1981 totaled about 144 bcm or 2.5 million b/d oil equivalent. Although this amount was about 4 percent lower than year-earlier levels, it still represented 67 percent of West European gas consumption.

Norwegian gas production of nearly 26 bcm was exported through two main pipeline systems.

- The Frigg system consists of two parallel lines to St. Fergus, Scotland, each with a capacity of 10 billion cubic meters per year. The system still is not operating at full capacity, and deliveries from Norway's 60 percent share of the field amounted to 11.2 bcm in 1981.

- The Ekofisk system consists of one pipeline with an annual capacity of 22 bcm connecting the Ekofisk complex with Emden, West Germany. Total deliveries in 1981 were down slightly to about 15 bcm.

The bulk of UK gas production in 1981 came from the Southern Basin fields which are linked to the UK by eight small pipelines. These fields produced 25.5 bcm of gas and are located within 20 miles of Dutch pipelines linking to continental Europe.

Two northerly pipeline routes link North Sea fields to St. Fergus, Scotland. The dual line Frigg system delivered 18 bcm in 1981, including the 40 percent UK share of the field's output. The Brent-St.Fergus line, with a 6 bcm annual capacity delivered about 5.7 bcm in 1981. A third pipeline, the Shell FLAGS system, is expected to become operational in 1982 with a 6-8 bcm annual capacity.

In the Netherlands, production from the Groningen and other onshore fields in 1981 declined to 68 bcm. Offshore production, however, rose slightly to 13 bcm, continuing the trend of recent years to deplete offshore finds more rapidly. Two pipeline connections with a combined capacity of nearly 28 bcm link offshore fields with the mainland. One line with an annual capacity of 15.5 bcm links to the Groningen system, the main pipeline grid in Continental Europe. The other line has an annual capacity of 12 bcm and enters the continent near Den Helder, Netherlands.

Development Potential

High interest rates, downward revisions in the outlook for European gas demand, and the likelihood of increased Soviet supplies in Western Europe have delayed or forced a scaling down in several development projects. A further softening in the energy market will cause additional development delays unless governments are willing to assist in arranging project financing or gas consumers are willing to pay premiums to guarantee diversity and security of supplies. Because of long lead times in project development, most companies will need to sign delivery contracts in the next year or two to justify the development cost of most North Sea fields for gas supplies in the 1990s.

Present Norwegian development plans are geared toward completion of a gas gathering network from Statfjord, Block 34/10, Heimdal, and other fields that will provide a small quantity of gas for Norway and eventually link to the continent via the existing Ekofisk to Emden pipeline. A major concern involves the laying of large diameter (36 to 48 inches) pipe across the deep Norwegian trench. The net addition to European supplies will be less than 7 bcm even if other fields were brought into the system because deliveries are limited by the 22 bcm capacity of the Ekofisk to Emden line.

Norwegian investment in oil and gas development will peak in the 1983-1984 period and decline rapidly thereafter unless new projects are approved. Production of both oil and gas from existing and developing projects will peak around 1990 and decline sharply thereafter. As a result, the Norwegians will probably decide on additional projects within the next 1-2 years to avoid a boom and bust cycle in the petroleum sector with respect to investment and employment.

Over the last several months, Oslo has taken several steps to speed the pace of oil and gas development. Exploration tracts north of the 62nd parllel have been opened to bids by foreign companies, and limitations on the drilling season and the number of rigs allowed to operate in some regions have been eased.

Gas reserves north of 62 degrees and technically difficult-to-develop reserves such as Block 31/2 will require high volume sales to justify the capital expenditures necessary to market gas. Moreover, overall project costs are sensitive to interest rates; reducing the interest rate for such a project from 15 to 12 percent could cut more than 10 percent from the cost of delivered gas.

There are no major technical constraints to development of offshore gas reserves in the United Kingdom and projected UK gas deliveries from proved reserves are likely to meet expected gas demand through 1992 with a small surplus occurring between 1988 and 1992. Beyond 1992, the United Kingdom will have to rely on imports to meet expected demand unless new discoveries increase production beyond presently expected levels.

Triangular Gas Deal

Some potential exists for expanding domestic European gas supplies by the early 1990s and minimizing the amount of additional gas that must be imported. Such a development would involve a swap of Norwegian gas to the United Kingdom in exchange for UK gas to the continent. This could reduce European vulnerability to a cutoff of gas imports from other sources.

A decision on the development of the Sleipner field will be made in the next one to two years. The field has a high concentration of carbon dioxide in the gas and probably will require a separate distribution system. Because several small fields in the UK sector have a similar problem with carbon dioxide content, a likely outlet for the Sleipner gas would be through a pipeline to the United Kingdom. Given the shorter distance to market, shipping the Sleipner gas to the United Kingdom will reduce delivery time by at least two to three years and costs would be cut by more than $1 billion. A gas pipeline from the Sleipner field would be capable of delivering at least 10-15 bcm annually based on present proven reserves.

Dutch policy is to conserve existing gas reserves for domestic purposes and not renew existing export contracts. Dutch officials, however, may be willing to consider an extension of existing contracts. Dutch gas sales have plummeted sharply in the past two years and gas sales provide the bulk of government revenue needs. Moreover, Dutch officials have expressed a willingness to serve as a contingency source for gas supplies if future deliveries could be guaranteed to offset extra Dutch production.

An extension of Dutch export contracts could provide additional gas for continental Europe through the early 1990s. The most likely source of gas to replenish additional Dutch production would come from Norway's Block 31/2 field where Shell Oil is the principal operator. Shell believes deliveries could begin in the late 1980s and reach 30 to 40 bcm by the mid-1990s if a viable market existed. Shell is also a major operator in the Dutch Groningen field.

Constraints

Several obstacles must be overcome to facilitate arrangements for additional deliveries of gas from internal European sources. Agreements must be reached on gas pricing and the political and security aspects must be assessed by individual countries. On balance, these obstacles are considerable and probably mean that large additional supplies of North Sea gas are unlikely before the mid-1990s. If attempts are successful in providing additional gas sooner than now expected, European purchasers probably would have to limit Soviet purchases to contract minimums to insure a viable market. Moreover, successful negotiations for the development of internal European gas reserves and new pipeline systems would provide Western Europe with increased security against gas supply interruptions.

DDI-2735-82/1

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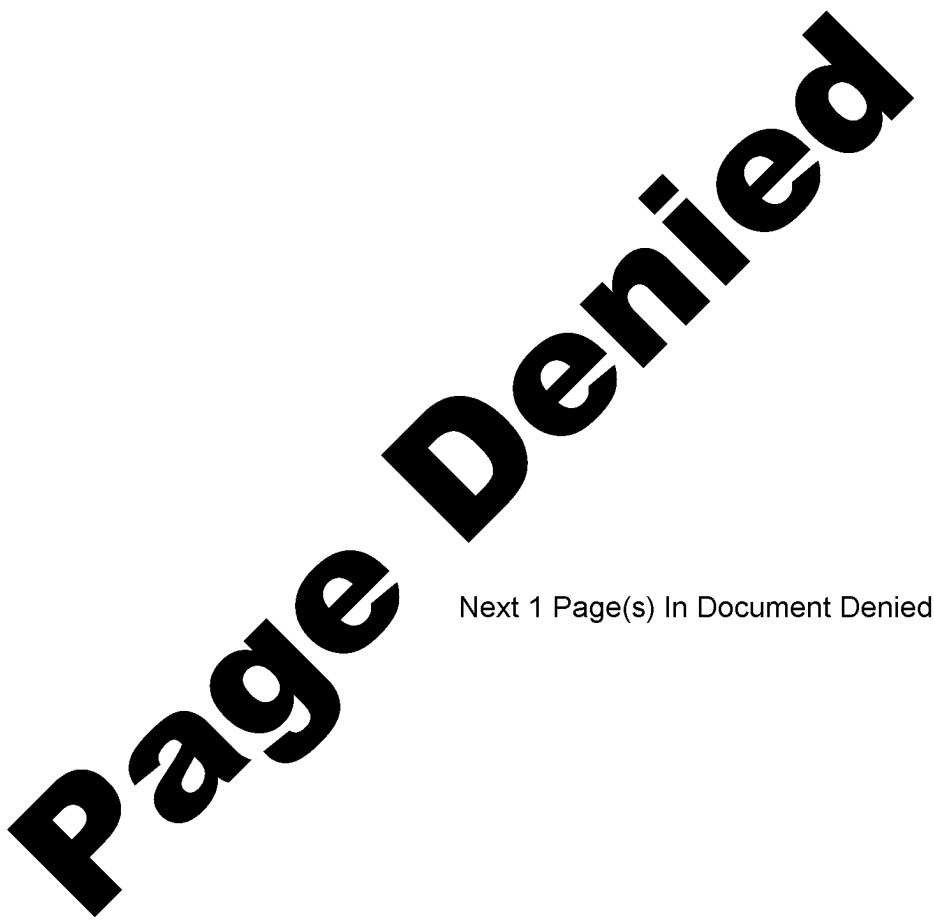
[redacted] STAT

Attachment:
As Stated



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